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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/974,799	10/12/2001	Tomonobu Tomaru	1248-0559P-SP	7768
2292	7590	11/23/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			TORRES, JOSEPH D	
			ART UNIT	PAPER NUMBER
			2133	

DATE MAILED: 11/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/974,799

Applicant(s)

TOMARU ET AL.

Examiner

Joseph D. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 30-51 is/are pending in the application.
- 4a) Of the above claim(s) 48 and 49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30-47, 50 and 51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. This application contains claims 48 and 49 drawn to an invention nonelected without traverse in the reply filed on 24 May 2004. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 112***

2. In view of the amendment filed 11/15/2004, the Examiner withdraws all previous **35 USC § 112** rejections to the claims.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 30-47, 50 and 51 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 34-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claims 34 and 41 recite, "A communication apparatus" in the preamble, but do not recite and tangible hardware that could be associated with an apparatus and only recite method steps.

Claims 35-40 depend from claim 34, hence inherit the deficiencies in claim 34.

Claims 42-47 depend from claim 40, hence inherit the deficiencies in claim 40.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 30-47, 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rathonyi; Bela Stefan Kazmir et al. (US 6359877 B1, hereafter referred to as Rathonyi) in view of Wicker (Stephen B. Wicker, Error control Systems for Digital Communication and Storage, Prentice-Hall, 1995, pages 408-423).

35 U.S.C. 103(a) rejection of claim 30.

Rathonyi teaches a communications method, which uses a data packet composed of a plurality of error correction blocks of block-type error correction codes (col. 7, lines 22-23 in Rathonyi teaches that CRC error correction codes are used for detecting errors in transmitted packet blocks; Note: col. 9, lines 44-51 in Rathonyi teach that a previous packet block from a previous packet 3 can be transmitted with a new packet block corresponding to a packet 9, hence the packet transmission frame used to transmit the two packets is a multiple block packet transmission frame consisting of two packets; Note also, that a packet transmission frame is a unit of transmission corresponding to one or more packet blocks contained in the packet transmission frame, hence the new packet transmission frame is formed of two blocks of previous packets, more explicitly, col. 7, lines 58-64 in Rathonyi teach that a transmission packet can be re-arranged into several smaller packets, i.e., blocks of the transmission packet), comprising the steps of: transmitting an error correction state of each error correction block from, a receiving end to a transmitting end (Figure 3C in Rathonyi teaches that a NAK, i.e., an error correction state of each error correction packet block, is transmitted from a receiving end to a transmitting end whenever an error is detected; Note: col.12, lines 12-17 in Rathonyi teaches that each sub-packet has its own CRC hence is an error correction packet block); and adding a block, a retransmission of which has been requested, to a block constituting a data packet to be transmitted next or subsequently from the transmitting end, thereby increasing a number of blocks in the data packet for transmission (col. 9, lines 44-51 and Figure 3C in Rathonyi teaches adding a packet

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block 3, a retransmission of which has been requested, to a packet block 9 constituting a data packet to be transmitted next or subsequently from the transmitting end, thereby increasing a number of blocks to two in the data packet transmission frame for transmission).

However Rathonyi does not explicitly teach the specific use of error correction decoding for each of said plurality of sub-packet blocks.

Wicker, in an analogous art, teaches use of error correction decoding for each of said plurality of sub-packet blocks (Figure 15-14 on page 415 of Wicker teaches Forward Error Correction [FEC] is performed in a Type II hybrid ARQ protocol). Note: col. 14, lines 22-41 in Rathonyi explicitly teach that the invention in the Rathonyi patent is intended for use in a Type II hybrid ARQ protocol.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rathonyi with the teachings of Wicker by including use of error correction decoding for each of said plurality of sub-packet blocks. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of error correction decoding for each of said plurality of sub-packet blocks would have provided the opportunity to implement a suggested embodiment in the Rathonyi patent (Note: col. 14, lines 22-41 in Rathonyi explicitly teach that the invention in the Rathonyi patent is intended for use in a Type II hybrid ARQ protocol).

35 U.S.C. 103(a) rejection of claim 31.

Rathonyi teaches the data packet contains a retransmission-block field where the block, a retransmission of which has been requested, is added, the field being not used in an ordinary state where there is no retransmission request (the sixth packet transmission frame in Figure 3C of Rathonyi contains a retransmission-block field where the packet block 3, a retransmission of which has been requested, is added, and if there is no retransmission request no field is created and an ordinary transmission takes place); and if a retransmission of more blocks than the retransmission-block field has been requested, some blocks to be transmitted in the data packet to which are added the blocks, a retransmission of which has been requested, are added to a subsequent data packet for transmission using the retransmission-block fields (in Figure 3C of Rathonyi requests for packet blocks 3, 8, 6 and 11 are made and the packet blocks 3, 8, 6 and 11 are added to subsequent blocks as room is made or becomes available for them).

35 U.S.C. 103(a) rejection of claim 32.

The NAKs in Figure 3C contain identification numbers of received blocks.

35 U.S.C. 103(a) rejection of claim 33.

The NAKs in Figure 3C contain identification numbers of received blocks and includes the number of identification numbers for which the error correction concluded determining that the blocks were decoded with uncorrectable errors (Note: the third NAK contains identification numbers 6 and 11 of received blocks and includes the two

identification numbers for which the error correction concluded determining that the blocks were decoded with uncorrectable errors).

35 U.S.C. 103(a) rejection of claims 34 and 41.

Rathonyi teaches a communications apparatus, which uses a data packet composed of a plurality of error correction blocks of block-type error correction codes (col. 7, lines 22-23 and Figures 1 & 2A in Rathonyi teaches that CRC error correction codes are used for detecting errors in transmitted packet blocks; Note: col. 9, lines 44-51 in Rathonyi teach that a previous packet block from a previous packet 3 can be transmitted with a new packet block corresponding to a packet 9, hence the packet transmission frame used to transmit the two packets is a multiple block packet transmission frame consisting of two packets; Note also, that a packet transmission frame is a unit of transmission corresponding to one or more packet blocks contained in the packet transmission frame, hence the new packet transmission frame is formed of two blocks of previous packets, more explicitly, col. 7, lines 58-64 in Rathonyi teach that a transmission packet can be re-arranged into several smaller packets, i.e., blocks of the transmission packet), comprising the steps of: transmitting an error correction state of each error correction block from, a receiving end to a transmitting end (Figure 3C in Rathonyi teaches that a NAK, i.e., an error correction state of each error correction packet block, is transmitted from a receiving end to a transmitting end whenever an error is detected; Note: col.12, lines 12-17 in Rathonyi teaches that each sub-packet has its own CRC hence is an error correction packet block); and adding a block, a



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retransmission of which has been requested, to a block constituting a data packet to be transmitted next or subsequently from the transmitting end, thereby increasing a number of blocks in the data packet for transmission (col. 9, lines 44-51 and Figure 3C in Rathonyi teaches adding a packet block 3, a retransmission of which has been requested, to a packet block 9 constituting a data packet to be transmitted next or subsequently from the transmitting end, thereby increasing a number of blocks to two in the data packet transmission frame for transmission).

However Rathonyi does not explicitly teach the specific use of error correction decoding for each of said plurality of sub-packet blocks.

Wicker, in an analogous art, teaches use of error correction decoding for each of said plurality of sub-packet blocks (Figure 15-14 on page 415 of Wicker teaches Forward Error Correction [FEC] is performed in a Type II hybrid ARQ protocol). Note: col. 14, lines 22-41 in Rathonyi explicitly teach that the invention in the Rathonyi patent is intended for use in a Type II hybrid ARQ protocol.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rathonyi with the teachings of Wicker by including use of error correction decoding for each of said plurality of sub-packet blocks. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of error correction decoding for each of said plurality of sub-packet blocks would have provided the opportunity to implement a suggested embodiment in the Rathonyi

patent (Note: col. 14, lines 22-41 in Rathonyi explicitly teach that the invention in the Rathonyi patent is intended for use in a Type II hybrid ARQ protocol).

35 U.S.C. 103(a) rejection of claims 35 and 42.

Rathonyi teaches the data packet contains a retransmission-block field where the block, a retransmission of which has been requested, is added, the field being not used in an ordinary state where there is no retransmission request (the sixth packet transmission frame in Figure 3C of Rathonyi contains a retransmission-block field where the packet block 3, a retransmission of which has been requested, is added, and if there is no retransmission request no field is created and an ordinary transmission takes place); and if a retransmission of more blocks than the retransmission-block field has been requested, some blocks to be transmitted in the data packet to which are added the blocks, a retransmission of which has been requested, are added to a subsequent data packet for transmission using the retransmission-block fields (in Figure 3C of Rathonyi requests for packet blocks 3, 8, 6 and 11 are made and the packet blocks 3, 8, 6 and 11 are added to subsequent blocks as room is made or becomes available for them).

35 U.S.C. 103(a) rejection of claims 36, 38, 43 and 45.

The sixth packet transmission frame in Figure 3C of Rathonyi teaches that the new and retransmitted packet blocks are added in consecutive order so that the retransmitted packet blocks are either at the head or at the tail of the sixth packet transmission frame.

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35 U.S.C. 103(a) rejection of claims 37 and 44.

The last packet transmission frame in Figure 3C of Rathonyi teaches that packet block 11 is added between the head and the tail of last packet transmission frame.

35 U.S.C. 103(a) rejection of claim 39, 40, 46 and 47.

Figure 3C of Rathonyi teaches that packet blocks can either have a fixed number of blocks when no retransmission is required or a variable number of blocks, if retransmission is required.

35 U.S.C. 103(a) rejection of claim 50.

Rathonyi teaches a communications system, including: a communications apparatus which receives a data packet composed of a plurality of blocks (the sixth packet transmission frame in Figure 3C of Rathonyi is a data packet transmission frame composed of a plurality of blocks), selects only an undecodable block out of a data packet that has been received, and transmit a request for a retransmission of the undecodable block (the CRC Check of Figure 4A is applied to all packets and only packets that exceed error correction capabilities, i.e. undecodable, are selected as needing to be retransmitted); and another communications apparatus which transmits a data packet composed of a plurality of blocks and when having received a request for a retransmission of an undecodable block, adds the block, a retransmission of which has been requested, to a block constituting a data packet to be transmitted next or subsequently, thereby increasing a number of blocks in the data packet for transmission

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(col. 9, lines 44-51 and Figure 3C in Rathonyi teaches adding a packet block 3, a retransmission of which has been requested, to a packet block 9 constituting a data packet to be transmitted next or subsequently from the transmitting end, thereby increasing a number of blocks to two in the data packet transmission frame for transmission, more explicitly, col. 7, lines 58-64 in Rathonyi teach that a transmission packet can be re-arranged into several smaller packets, i.e., blocks of the transmission packet); a data packet receiving end transmits, to a data packet transmitting end, a request for a retransmission of only an undecodable block out of a data packet that has been received (Figure 3C in Rathonyi teaches that a NAK, i.e., an error correction state of each error correction packet block, is transmitted from a receiving end to a transmitting end whenever an error is detected); and the data packet transmitting end, in response to the request for a retransmission, retransmits a corresponding block (In Figure 3C in Rathonyi, packet blocks 3, 6, 8 and 11 are retransmitted).

However Rathonyi does not explicitly teach the specific use of error correction decoding for each of said plurality of sub-packet blocks.

Wicker, in an analogous art, teaches use of error correction decoding for each of said plurality of sub-packet blocks (Figure 15-14 on page 415 of Wicker teaches Forward Error Correction [FEC] is performed in a Type II hybrid ARQ protocol). Note: col. 14, lines 22-41 in Rathonyi explicitly teach that the invention in the Rathonyi patent is intended for use in a Type II hybrid ARQ protocol.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rathonyi with the teachings of Wicker by including use of

error correction decoding for each of said plurality of sub-packet blocks. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of error correction decoding for each of said plurality of sub-packet blocks would have provided the opportunity to implement a suggested embodiment in the Rathonyi patent (Note: col. 14, lines 22-41 in Rathonyi explicitly teach that the invention in the Rathonyi patent is intended for use in a Type II hybrid ARQ protocol).

35 U.S.C. 103(a) rejection of claim 51.

Rathonyi teaches a communications system, including: a communications apparatus which receives a data packet composed of a plurality of blocks (the sixth packet transmission frame in Figure 3C of Rathonyi is a data packet transmission frame composed of a plurality of blocks), selects only an undecodable block out of a data packet that has been received, and transmit a request for a retransmission of the undecodable block (the CRC Check of Figure 4A is applied to all packets and only packets that exceed error correction capabilities, i.e. undecodable, are selected as needing to be retransmitted); and another communications apparatus which transmits a data packet composed of a plurality of blocks and when having received a request for a retransmission of an undecodable block, adds the block, a retransmission of which has been requested, to a block constituting a data packet to be transmitted next or subsequently, thereby increasing a number of blocks in the data packet for transmission (col. 9, lines 44-51 and Figure 3C in Rathonyi teaches adding a packet block 3, a

retransmission of which has been requested, to a packet block 9 constituting a data packet to be transmitted next or subsequently from the transmitting end, thereby increasing a number of blocks to two in the data packet transmission frame for transmission, more explicitly, col. 7, lines 58-64 in Rathonyi teach that a transmission packet can be re-arranged into several smaller packets, i.e., blocks of the transmission packet); a data packet receiving end transmits, to a data packet transmitting end, a request for a retransmission of only an undecodable block out of a data packet that has been received (Figure 3C in Rathonyi teaches that a NAK, i.e., an error correction state of each error correction packet block, is transmitted from a receiving end to a transmitting end whenever an error is detected); and the data packet transmitting end, in response to the request for a retransmission, retransmits a corresponding block (In Figure 3C in Rathonyi, packet blocks 3, 6, 8 and 11 are retransmitted).

However Rathonyi does not explicitly teach the specific use of error correction decoding for each of said plurality of sub-packet blocks.

Wicker, in an analogous art, teaches use of error correction decoding for each of said plurality of sub-packet blocks (Figure 15-14 on page 415 of Wicker teaches Forward Error Correction [FEC] is performed in a Type II hybrid ARQ protocol). Note: col. 14, lines 22-41 in Rathonyi explicitly teach that the invention in the Rathonyi patent is intended for use in a Type II hybrid ARQ protocol.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rathonyi with the teachings of Wicker by including use of error correction decoding for each of said plurality of sub-packet blocks. This

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modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of error correction decoding for each of said plurality of sub-packet blocks would have provided the opportunity to implement a suggested embodiment in the Rathonyi patent (Note: col. 14, lines 22-41 in Rathonyi explicitly teach that the invention in the Rathonyi patent is intended for use in a Type II hybrid ARQ protocol).

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joseph D. Torres, PhD  
Primary Examiner  
Art Unit 2133

